

Bibliometric Study of Bodo Literature Published from 2005 to 2009

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Abstract

Purpose: The purpose of the study is to make a bibliometric assessment of Bodo literature published from 2005 to 2009 regarding citation, authorship pattern, and distribution of articles.

Methodology: To find the growth of documents in Bodo literature, a total of 110 publications were retrieved for the period from 2005 to 2009. Data related to the number of authors, the names of the contributing institutions, and the agency to which they belonged were fed into the MS Excel sheet for analysis, and an analytical method with the help of statistical techniques was followed for the study.

Findings: The study suggests some measures in order to increase research activity and publication, especially among the junior research scholars who are still aspiring towards achieving their doctorate in respect of Bodo literature. The measures therefore suggested are concerned with an increased incentive towards achieving and remuneration on published articles and, at the same time, with a good citation pattern, and their increased cooperation between national and international would open newer horizons for research and publication.

Research Limitations: The analytical study was kept confined to five years (2005–2009). It covers those documents that can be traced from the source of the publisher's bibliography and are available in different libraries in the region and in the personal collection of the author. Those documents that do not have any citations are excluded from the analysis. Again, in the case of citation analysis, only the cited articles are analysed.

Originality: Several studies have been published in the literature on different aspects of bibliometrics. However, no previous study has been reported in a regional language on Bodo literature that deals with bibliometrics. The Bodo language has a written record from the last part of the 19th century, and the language also got Indian government recognition as a scheduled language in 2003.

Keywords: Bodo literature, bibliometrics, citation analysis, degree of collaboration, quantitative analysis

1. Introduction: The North Eastern Region is a mosaic of different tribes with distinctive languages and dialects, religions, customs, cultural practices, and lifestyles. Among the other North Eastern States, Assam is a state where people live from Sodiya to Dhubri, along with the northern and southern parts of the mighty Brahmaputra, the Bodoland Territorial Area District (BTAD), and some autonomous councils. The Bodo peoples are numerically the largest groups among those tribes, which are among the most aborigine inhabitants of Assam. They primarily inhabit the northern bank of the Brahmaputra River, and their population is highest in the BTAD (Bodoland Territorial Area District).

The analysis of Bodo literature is a kind of statistical and mathematical evaluative technique that is trying to evaluate quantitatively the literal or literary information published in the Bodo literature for the period of 2005 to 2009. For evaluating and analysing this literary information, there are two types of contributions: source contributions, i.e., articles, and cited documents, i.e., references. The articles have been analysed minutely without any particular consideration of the subject field. It is a fact that most of the articles are of an interdisciplinary nature, and some of those are of a multidisciplinary nature. The total number of articles has been analysed according to the given references. Various statistical methods

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are applied in this analytical study of Bodo literature, and to conclude this analytical study, Bradford's Bibliometric laws are applied. All data are organised in tabular form, and organised data is presented in the form of a pie diagram and graph as far as possible.

The growth and developments of Bodo literature, which analyses their activities and development both quantitatively and qualitatively, are analysed by statistics, which itself is a quantitative analysis and qualitative in the sense that qualities can also be measured with the help of statistics. Library and Information Science is also a field where statistical techniques are applied to make quick and accurate analyses of information. It is necessary for the field of users, which is a tremendous growth of Bodo literature, and in the present as a result of the computer-aided increasing capability of libraries to accumulate and store massive amounts of information. That is why information and library managers have adopted a number of quantitative methods in recent years in order to evaluate library resources and services more objectively and effectively. Bibliometrics, the subject of the study, is a technique that is done by library information scientists.

2. Review of Literature: Several studies dealing with the bibliometric and citation analysis of individual journals are available in the literature. However, only a few studies dealing with the bibliometric analysis of Bodo literature have appeared. For this topic or research article, the author consulted some of the micro as well as macro documents and the literature survey for the bibliometric as well as analytical study of Bodo literature. The textbooks of bibliometrics and Bodo literature are reviewed, which contain various pieces of information.

Bibliometric Applications: The Study of Literature Use Pattern, by Nemani Govinda Raju, contains bibliographic studies that are applied in social science literature and economics with different subject fields.

Bibliometrics, Informetrics, and Scientometrics: Opening New Vistas of Information Science, by Aswini Tiwari, contains bibliometric law and citation analysis.

The Historical Development of the Bodo Language by Madhura Boro contains the gradual development of Bodo literature and language since the ancient era.

An Introduction to Bodo Language by Phukan Basumatary contains an introduction to the Bodo language and literature.

The Tribes of Assam, Part III, by B.N. Bordoloi, gives a brief description of the tribes of Assam.

3. Objectives: The objectives of the study are

- i) To find the growth pattern of Bodo literature;
- ii) To find out the authorship pattern;
- iii) To find the publishing pattern of major Bodo documents: author's productivity;
- iv) To find out the most profiled and most cited authors in the field of Bodo literature;
- v) To find out the most cited Bodo document;
- vi) To understand the average length of the articles; and
- vii) To find the geographical locations of authors.

4. Growth Pattern of Bodo Literature: One of the most important characteristics of literature has been its rate of growth, which has been found to vary from one subject to another in various Bodo literatures. To find the growth of documents contained in the Bodo literature documents, the total number of publications (110) retrieved from the Bodo literature documents for the short period from 2005-2009 was analysed year-wise, and results are shown in Table 1.

Year	No. of Documents	Percentage (%)	Cumulative Documents	Cumulative Percentage (%)
2005	16	20	20	20
2006	18	22.5	34	42.5
2007	22	26.25	55	68.75
2008	20	30	85	98.75
2009	4	5	110	100.00
Total	80	100.00		

Table 1: Growth Pattern of Bodo Literature

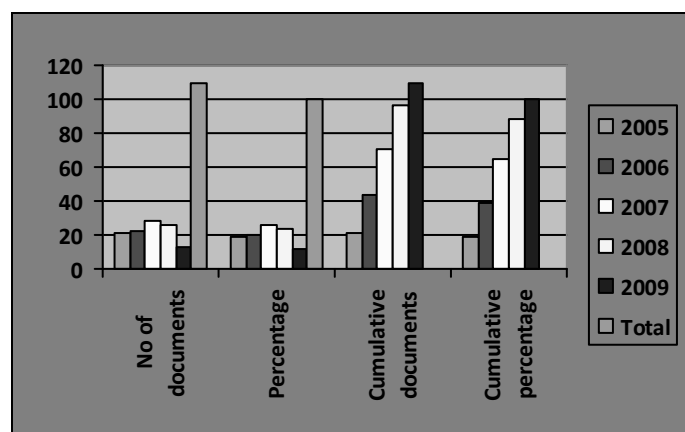


Fig. 1: Year-wise degree of collaboration

5. Authorship Pattern: The authorship pattern is studied, and the degree of collaboration is determined from the point of view of the authorship pattern and the year-wise degree of collaboration.

Sl. No	Name of Authors	No. of Documents	Percentage	Cum. No. of Documents	Cumulative Percentage
1	Single	73	91.25	73	91.25
2	Two	3	3.75	76	95
3	Three	1	1.25	77	96.25
4	Four & More author	1	1.25	78	97.50
5	Organization	2	2.50	80	100.00
Total		80	100.00	80	100.00

Table 2: Degree of Collaboration

Year	Single Authored	Multi Authored	Total	Degree of Collaboration
2005	15	1	16	0.2
2006	18	-	18	0.22
2007	22	-	22	0.27
2008	17	3	20	0.25
2009	3	1	4	0.05

Table 3: Year-wise Degree of Collaboration

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6. Author Productivity: Table 4 in the above table shows the degree of collaboration of a single author, two authors, three authors, and four or more than four authors. The analysis indicates that the degree of collaboration for a single author is the highest, i.e., 0.93; the degree of collaboration in the case of two authors is 0.03, and the very low degree of collaboration for four and more than four authors is 0.02, respectively.

No Author	No. of Articles in the Year					Total	Degree of Collaboration
	2005	2006	2007	2008	2009		
One	15	18	22	17	3	75	0.93
Two	-	-	-	2	1	3	0.03
Three	-	-	-	-	-	-	
Four & More	1			1	-	2	0.02
Total	16	18	22	20	4		80

Table 4: Degree of Collaboration of Multi-Authored Articles

7. Price Distribution Pattern: The distribution of price ranges among the Bodo literature documents and publications is also necessary. Among the 80 documents in Bodo literature that show the year-wise price distribution in selected price ranges from 10 to 200 rupees, which are distributed as bellow

Price Range	Year					Total	Percentage (%)
	2005	2006	2007	2008	2009		
10-20	-	-	-	1	-	1	1.25
21-30	2	2	-	9	1	14	17.5
31-40	2	4	11	3	1	21	26.25
41-50	4	5	4	4	-	17	21.25
51-60	5	5	2	1	-	13	16.25
61-70	-	-	2	-	-	2	2.5
71-80	-	1	2	-	-	3	3.75
81-90	2	-	-	-	-	2	2.5
91-100	-	-	1	2	-	3	3.75
101-200	1	1	-	-	2	4	5
Total	16	18	22	20	4		
PC (%)	20	22.5	27.5	25	5	80	100

Table 5: Price Distribution Pattern (Year-wise Selected Price Range)

Table 5 indicates that the price distribution pattern of Bodo literature shows a price range between 31 and 40, where 21 (26.25%) Bodo literature documents are published at a high rate of growth. To see the year-wise growth in 2007, it shows a total of 22 (27.5%), respectively. In Bodo literature, publications with a price range of more than 70 or above are very rare, while those in a price range of 30 to 60 are common. Basically, in Bodo literature's publication, there are limited price ranges between 30 and 60 rupees.

8. Geographical Location of Authors: The distribution of the author's geographical location among the Bodo literature shows that they are located in Bodo-dominated areas. Table 6 indicates that the highest contribution is made by the local geographical location, which is the state of Assam. It is subdivided into three sub-districts, like Kamrup (M/R), Kokrajahr, and

some other districts. The basic contribution was 78 (97.5%) during the period under review. The remaining two contributions (2.5%) are authored by Indian authors.

Geographic Location		No of Authors		Percentage (%)
International		0		0 (%)
National (India)		2		2.5 (%)
Local (Assam)	Kamrup (M/R)	6	78	97.5 (%)
	Kokrajhar (BTAD)	70		
	Others	2		
Total		80		100.00 (%)

Table 6: Geographical Locations of Authors (Only First Author Considered)

Note: Kamrup Metro / Rural (M/R); Bodoland Territorial Area District (BTAD)

9. Institutional Belongingness of the Authors: To find out the institutional affiliation of the contributors, it was necessary to categorise the institutions. The resultant analysis revealed that the contributions belonged mainly to five categories: research organisations, universities, colleges, schools, and corporate organisations. Besides those contributions of institutional belonging, the author cannot be identified from the information available in the documents and is kept unidentified.

Institutional Belonging	No. of Authors	Percentage (%)
Research Organisation	0	00.00
University	7	10.60
College	40	60.60
Schools	8	12.12
Corporate Organisation	2	3.03
Unidentified	9	13.63
Total	66	99.98

Table 7: Institutional Affiliation of Authors (Considering Only the First Author)

Note: Under the 80 Bodo literature documents, 14 documents are published by the same author, so their contribution has not been taken into account.

Table 7 reveals that the majority of the Bodo literature as well as contributors belonged to University and College Lecturers 7 (10.60%) and 40 (60.60%), where they are basically attached to academic purposes. The school teachers also give their contributions to the development of Bodo literature: 8 (12.12%), 2 (3.03%) are contributions of corporate organisations, and 9 (13.63%) are unidentified members of their own institutions as well as organisations.

10. Range of Cited Documents: Due to the low percentage of referred articles in the Bodo literature document, the range of cited documents was quite small. It is because of literary subjects that authors give less importance to referring to their writing about novels, plays, essays, short stories, etc. Only some of the literature documents on literary development, history, and some research papers have seen the cited references. Basically, in Bodo literature, the cited references are very few other than social science documents. The Bodo literature' cited references ranged from 40 to 60 per document, and the categorization was made into 10 classes.

No. of Cited Documents	No. of Articles	Percentage (%)
1-10	6	7.5
11-20	23	28.75
21-30	9	11.25
31-40	5	6.25
41-50	12	15.00
51-60	7	8.75
61-70	3	3.75
71-80	7	8.75
81-90	6	7.5
91-100	2	2.5
Total	80	100

Table 8: Range of Cited Documents

Table 8 indicates that 23 articles out of 80 documents (28.75%) have citations ranging from 11 to 20. Among them, most of the articles have 50 references. This number is followed by the range 41–50. The maximum number of references, i.e., ranged from 91 to 100, and the minimum number of articles ranged from 1 to 10.

11. Year wise Distribution: Table 9 indicates the use of documents per year, which is determined by counting the number of citations. The use of Bodo literature documents increased in 2007 (38.98%) to 377 citations, while it decreased in 2005 (6.30%) to 61 citations.

From this distribution table, it can be ascertained that the number of years 2007 is the best in the use of documents as well as the production of Bodo literature.

Sl. No	Year	No. of Article	References	Average	Percentage
1-16	2005	16	61	3.81	6.30
17-34	2006	18	200	11.11	20.68
35-56	2007	22	377	17.13	38.98
57-76	2008	20	250	12.5	25.85
77-80	2009	4	79	19.75	8.16
Total		80	967	64.3	99.97

Table 9: Year-wise Distribution of Article and Citations

12. Bibliographical Form of Cited Documents: The cited documents are categorised into 4 categories on the basis of their bibliographical form, and the frequency of these forms is determined year-wise. Table 10 provides a clear indication of the bibliographic form of the cited document. Historical documents have the most frequently cited authors (486, or 50.25%), and other bibliographic formats are cited in prose documents in comparison to other documents. In the case of proceeding papers, there have been only 10 (or 1.03%) citations.

Bibliographic Form	Frequency of Cited Documents						
	2005	2006	2007	2008	2009	Total	PC (%)
Prose	30	90	77	170	59	426	44.05
Proceedings	0	0	0	10	0	10	1.03
Historical Doc.	31	100	300	45	10	486	50.25
Research Doc.	0	10	0	25	10	45	4.65
Total	61	200	377	250	79	967	99.98%

Table 10: Bibliographical Forms of Cited Documents

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13. Document Self-Citations: Document self-citations reveal a publishing preference by the authors. A document in Bodo literature may be renowned for publishing a document in a certain area of study. It can be determined by determining the self-citation rate. Table 11 shows the number of articles containing document self-citation with varying percentages. Out of 80 documents, only 52 (65%) contain document self-citation, and the frequency is 26.

Sl. No.	Year	No. of Total Article	No. of Article Containing Document Self-citation	Percentage (%)
1-16	2005	11	5	19.23
17-34	2006	18	8	30.76
35-56	2007	13	3	11.53
57-76	2008	10	10	38.46
77-80	2009	0	0	0
Total	80	52 (56%)	26	99.68

Table 11: Documents of Self-Citation, 2005-2009

14. Observation: The above results demonstrate that there are significant differences in productivity in different areas of Bodo literature. Although productivity is not directly proportional to funding in all cases, there are reasons to believe that funding plays a major role in the overall productivity of literature.

From the above study and analysis of data, we may derive the following findings:

- The length of the article and space occupation of the various articles vary from 1 to 39; most of the article pages are from 1 to 5 (57.86%), followed by the range 6–10 (30.89%), the ranges of 11–20 (6.40%), 31–39 (2.86%), and 21–30 (1.96%) are negligible in respect. The highest number of pages, i.e., 39, is found in the year 2009.
- The authorship pattern of the Bodo literature where single authorship is greater than that of two or multiple authors shows that 73 (91.25%) are single authors, 3 (3.75%) are two authors, and the rest of the three or four authors are 1 (1.25%). It signifies that the majority of local emphasis is given to the growth of Bodo literature with single authors.
- Analysis of author productivity shows that out of 80 documents published between 2005 and 2009, which have been taken for an analytical study of Bodo literature, only two authors have produced five documents each, two authors have produced four documents each, two authors have produced three documents, eight authors have produced two documents each, and 32 authors have produced a single document each. (In cases of double authorship, only the first author is taken.)
- The price distribution table indicates that the price distribution pattern in Bodo literature, which shows a price range between 31 and 40, shows a total of 21 (26.25%) and year-wise growth in 2007 of a total of 22 (27.5%), respectively. In Bodo literature, publications with a price range of more than 70 or above are very rare, while those in a price range of 30 to 60 are common. Basically, in Bodo literature's publication, there are limited price ranges between 30 and 60 rupees.
- The geographical location of authors shows that the highest number of authors are from local geographic locations, with a varying percentage of 78 (97.5%) and 2 (2.5%) being the contribution of the national author.
- Most of the authors are affiliated with academic organisations like colleges and universities, with 40 (60.60%) and 7 (10.60%), respectively. The rest of the authors are basically from schools, with 8 (12.12%) from corporate organisations, 2 (3.03%) available, and 9 (13.63%) belonging to unidentified authors, respectively.
- For the Bodo literature, the coverage of prose is 34 (42.5%), followed by poetry at 12 (15%), novels at 11 (13.75%), and the rest of the easy, short stories, and drama are covered at

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a lower percentage than prose and poetry. As a result of the year-wise growth of prose literature in 2007 (22.7%), followed by 2006 (22.5%), subject areas are covered.

h) The range of cited documents covering Bodo literature ranges between 11 and 20 and shows the highest range of 23 (28.75%), followed by 41–50, which is 12 (15%), 21–30, which is 9 (11.25%), and 71–80, which is 7 (8.75%), which shows the least range of cited documents, respectively.

i) Analysis of the distribution of citations reveals that the use of citations is gradually increasing. The highest distribution of document citations is in 2007 (377), with 38.98%. But in the years 2005 and 2009, it fell to 61 (6.30%) and 79 (8.16%), respectively.

j) Analysis of the bibliographical form of the cited document indicates that the highest number of references are taken from historical documents, i.e., 486 (50.25%) and 426 (44.05%) from prose documents. followed the rest of the cited documents from such kinds of research and other documents.

k) The documents in self-citation were cited 26 times as the highest cited in 10 (38.46%) in the year 2008.

The findings of this study point toward the role played by status, prestige, and funding in the productivity of the literature. The study, therefore, suggests some measures in order to increase research activity and publication, especially among the junior research scholars who are still aspiring towards achieving their doctorate in Bodo literature. The measures therefore suggested are concerned with an increased incentive towards achieving and remuneration on published articles and, at the same time, with a good citation pattern, and their increased cooperation between national and international co-operation would open newer horizons for research and publication.

The present study has revealed many interesting findings, as explained in the preceding section. Based on the analytical observations made in this study, the following suggestions can be made:

- a) Bibliometric studies should be applied at the macro and micro levels of literature.
- b) Statistical databases should be created and maintained to provide ready-made data for use in bibliographic analysis.
- c) Basic statistical techniques should be taught and applied with informetrics.

15. Conclusion: Bibliometrics plays a significant role in libraries and information management as well as in their fields. It helps to know the trend of research through the evaluation of research scholars' activities and also helps to evaluate a document.

This study endeavoured to establish the relationship between the status of the Bodo literature and its productivity. The findings obtained in this study showed that the productivity of a Bodo writer is directly related to his status in the department. Prestige, both personal and institutional, is considered an important aspect of the productivity of literature. The data collected from the respondents clearly indicated that literature from the prestigious institutions, that is, historically advantaged universities, presented larger numbers of documents on the language and linguistic formation of Bodo literature as well as published greater numbers of documents that are locally and nationally available.

Referring to the reviewed literature of this study, productivity has been linked to various factors such as age, subject specialisation, and economic indicators such as government expenditure on literature research and development.

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